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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,566	07/25/2001	Garry E. Jacobs	213/219-US5	2974
34284	7590	03/24/2004	EXAMINER	
ROBERT D. FISH; RUTAN & TUCKER, LLP			DOROSHENK, ALEXA A	
P.O. BOX 1950			ART UNIT	
611 ANTON BLVD., 14TH FLOOR			PAPER NUMBER	
COSTA MESA, CA 92628-1950			1764	
DATE MAILED: 03/24/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

<b>Office Action Summary</b>	<b>Application No.</b> 09/787,566	<b>Applicant(s)</b> JACOBS ET AL.	
	<b>Examiner</b> Alexa A. Doroshenk <i>ADD</i>	<b>Art Unit</b> 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 22-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 12 and 14-21 is/are rejected.
- 7) ☐ Claim(s) 10 and 13 is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7-19-01 &amp; 6-13-01</u> . | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-21, drawn to a bubble cap apparatus.

Group II, claim(s) 22-30, drawn to mixing apparatus with beams supports.

2. The inventions listed as Groups I and Group II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention is a bubble cap with riser vanes while the special technical feature of the Group II invention is outwardly extending support beams. Because the special technical feature of the Group I invention is not present in the Group II claims and because the special technical feature of the Group II invention is not present in the Group I claims, unity of invention is lacking.

3. During a telephone conversation with Robert Fish on March 18, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-21. Affirmation of this election must be made by applicant in replying to this Office action. Claims 22-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 16, 18, 19 and 20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,508,459 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent disclose of a bubble cap with a riser, cap and a plurality of riser vanes, with vane passageways, which are part of a distribution tray.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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8. Claims 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Porter et al. (3,859,063).

With respect to claim 16, Porter et al. disclose a bubble cap (col. 1, lines 7-10) comprising a riser (3), a cap (4) and a plurality of riser vanes (7).

With respect to claim 17, Porter et al. further disclose wherein the riser (3) is disposed upstream of the riser vanes (7), and the cap (4) is disposed downstream of the riser vanes (7) (see fig. 4 and col. 3, lines 12-14).

With respect to claim 18, Porter et al. further disclose wherein the plurality of riser vanes (7) are spaced apart from each other (see figure 2) and thus a passageway is defined (col. 3, lines 27-34).

With respect to claim 19, Porter et al. further disclose wherein the riser vanes (7) are "spiral" (figures 2 & 3 and col. 3, lines 6-7) which reads on curved.

With respect to claims 20 and 21, Porter et al. further disclose wherein there is a vessel (1) with an outlet (2) thus reading on a "distribution zone" as clean gas is distributed out of the vessel.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 2, 4-9, 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossetti et al. (5,152,967) in view of Porter et al. (3,859,063).

With respect to claim 1, Rossetti et al. disclose a mixing apparatus (10) which includes a swirl chamber (inside 18) having an outlet (col. 3, lines 30-32); and a distribution network downstream of the outlet (see fig. 1), having a plurality of fluid guides extending outwardly relative to the outlet (37 and 21) and a plurality of bubble caps (31).

Rossetti et al. discloses wherein the bubble caps are "standard bubble caps" (col. 4, line 52), but does not disclose wherein they have riser vanes.

Porter et al. disclose a bubble cap (col. 1, lines 7-10) comprising a riser (3), a cap (4) and a plurality of riser vanes (7) and teach that a standard cap can be modified with the installation of the riser vanes (7) (abstract) to improve the efficiency of the cap (col. 1, lines 57-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the standard caps of Rossetti et al. in the manner taught by Porter et al. in order to gain the advantages in efficiency as taught by Porter et al.

With respect to claim 2, Rossetti et al. further disclose wherein the swirl chamber receives material from a plurality of openings (20) which are fitted with a member (19) which imparts a swirling motion to the fluid passing there through (col. 3, lines 45-47).

With respect to claim 4, Rossetti et al. further disclose wherein the swirl chamber is fitted with a plurality of vanes (19) (reads on baffles) (col. 3, lines 55-58).

With respect to claim 6, Rossetti et al. further disclose a pipe (32) for feeding quench material to the chamber (col. 3, lines 20-24 and col. 4, lines 55-57).

With respect to claim 7, Porter et al. further disclose wherein riser vanes (7) are positioned between the riser (3) and the cap (4) (see fig. 4 and col. 3, lines 12-14).

With respect to claim 8, Porter et al. further disclose wherein the plurality of riser vanes (7) are spaced apart from each other (see figure 2) and thus a passageway is defined (col. 3, lines 27-34).

With respect to claim 9, Porter et al. further disclose wherein the riser vanes (7) are "spiral" (figures 2 & 3 and col. 3, lines 6-7) which reads on curved.

With respect to claim 15, Rossetti et al. further disclose wherein the swirl chamber (18) and distribution network (37, 21 and 31) are disposed between two catalyst bed reaction zones (12, 13) (col. 3, lines 1-5).

12. Claims 3, 11, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossetti et al. (5,152,967) in view of Porter et al. (3,859,063), as applied to claim 1, and further in view of Perry et al. (5,567,396).

With respect to claims 3, 5 and 11, the modified apparatus of Rossetti et al. disclose wherein the swirl chamber receives material from a plurality of openings (20),

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but fails to disclose wherein the openings are fitted with a ramp sloping downward toward the swirl chamber.

Perry et al. also teach of a similar mixing apparatus with a swirl chamber (80) with a downward sloping ramp (68) toward the opening (72) of the chamber (80) and that such a sloping ramp (68) assists in the liquid flow toward the opening (72) (col. 8, lines 18-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to slop the plate (16) of Rossetti et al. in the manner of Perry et al. in order to promote the flow of fluid to the openings of the swirl chamber.

With respect to claims 5 and 12, the modified apparatus of Rossetti et al. does not disclose a plurality of floor baffles upstream of the openings (20).

Perry et al. also teach of a similar mixing apparatus with a swirl chamber (80) with a downward sloping ramp (68) toward the opening (72) of the chamber (80) and a weir/floor baffle (74) upstream of the openings in order to regulate the residence time of liquid (col. 8, lines 31-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Perry et al. and provide floor baffles upstream of Rossetti et al.'s openings (20) in order to regulate the residence time of the liquid in the device.

Though Perry et al. demonstrate only one floor baffle/weir, duplicating parts for a multiplied effect is not the type of innovation for which a patent monopoly is to be granted. St. Regis Paper Co. v. Bemis Co., Inc. 193 USPQ 8, 11 (7<sup>th</sup> Cir. 1977).

With further regard to claim 12, Rossetti et al. further disclose wherein the swirl chamber is fitted with a plurality of vanes (19) (reads on baffles) (col. 3, lines 55-58).



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With respect to claim 14, the modified apparatus of Rossetti et al. does not disclose a splash plate interposed between the outlet of the swirl chamber and the distribution network.

Perry et al. also teach of a similar mixing apparatus with a swirl chamber (80) and a distribution network (112, 106 and 114). Perry et al. further teaches a skirt (92), which reads on a splash plate, which functions to divert the liquid to better disperse it to the plate and catalyst bed below (col. 9, lines 7-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a skirt/splash plate between the outlet and distribution network of the modified apparatus of Rossetti et al. in order to further improve the dispersion of the liquid to catalyst bed (13) below.

#### ***Allowable Subject Matter***

13. Claims 10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: The prior art neither teaches nor suggests the mixing apparatus wherein the outlet and fluid guides are disposed in a hub and spoke configuration nor wherein the fluid guides are also radial support beans which support the swirl chamber.

#### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 571-

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272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexa Doroshenk  
Patent Examiner  
Art Unit 1764

March 19, 2004